CFTRI Bibliographical
Series No. 14

Development of Fish Technology In India

(An annotated bibliography: 1964-73)

Central Food Technological Research Institute
Mysore 13.
1975

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Development of Fish Technology in India

An Annotated Bibliography
(1964-73)

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1975
CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE
MYSORE 13

FOREWORD

This annotated bibliography is one of the series of bibliographies brought out by the Institute and has been released on the eve of the "Symposium on Fish Processing Industry in India" organised by the Association of Food Scientists and Technologists (India) and the Central Food Technological Research Institute, Mysore.

The R&D work on Fish Technology in India in the past decade has been quite intensive and hence it is felt that compilation of present status of this effort as an annotated bibliography would be of immense use to the research scientists, fish processing industry and quality control agencies of the government.

The annotated bibliography covers the work reported by the Indian scientists during the period 1964 to 1973 in the Indian and International scientific journals. It contains about 300 abstracts of papers relating to R&D development in Fish Technology, especially fish processing, utilisation, nutritional quality, methods for quality control and utilisation of by-products. The abstracts have been arranged in a classified sequence with a subject index at the end.

I wish to record my appreciation of the efforts put in by Dr. M S Shetty and Sri S V Sangameswaran in preparing the abstracts and of Sri M V Gopinath, Sri S B Chennakeshava Das and Miss K M Prabhavathy in the classification and indexing of the material.

I hope the information contained in this compilation will provide the background material to the participants for useful discussions in the symposium.

B.L.AMLA
Director

DEVELOPMENT OF FISH TECHNOLOGY IN INDIA, 1964 - 73

An Annotated Bibliography

Fish : Utilisation

1 SAXENA (BS). Recent economic trends in fish utilisation. (Seafood Export J. 5; 1973;9

Presents the economic factors influencing fish utilisation trends in India.

2 SEN (DP) and BHANDARY (CS). Utilisation of miscellaneous fish in India. (Seafood Export J. 4; 1972; 161).

Catch statics of different fishes, grouped as 'miscellaneous fish', in the year 1968 has been given. Different process of utilisation of these fishes have been dealt with in detail.

Fish : Industry

3 DUTT (S). The state of the fish processing industry. (Seafood Export J. 2; 1970; 59).

Describes in detail the status of the fish processing industry in India.

4 GOVINDAN (TK). Fish and the nation. (Seafood Export J. 1; 1969; 19).

A proper exploitation of vast resources of fish, their utilisation by extending freezing and canning industries, modernisation of fish curing industry and economic utilisation of trash fish and other byproducts may bring a bright future to the Indian fishery industry.

5 PILLAI (VK) and GOVINDAN (TK). Fish processing industry in India. (Indian Food Pack. 23; 1969; 40.

Critically reviews the growth in fish processing industry in India.

6 SEN (DP). Seafood industry in India - its present state and scope. (Indian Farmers' Digest, 5; 1972; 19).

Describes in detail marine fishes in India, fish as food, utilisation of fish, processed fish and other seafood products.

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Fish ; Industry ; Marketing

7 VENKATARAMAN (R) and KANDORAN (MK). Marketing potentialities of some new fishery products. (Seafood Export J. 2; 1970; 29.

Stresses the importance of such fishery produ which will have a significant market in India as well as in foreign countries.

Fish; Industry; Export

8 BHATTACHERJEE (DP). Quality of fishery exports. (Seafood Export J. 5; 1973; 173.

Gives an account of the standards and quality the fish and fishery products exported from Indi during 1969 to 1972.

9 GEORGE (JP). Marine exports - a perspective. (Ind Seafoods. 9; 1971; 11.

Critically reviews the present position and future prospects of exports of marine products i India.

10 GOKHALE (SV). Survey of India's export potential o marine products by the Indian Institute of Forei Trade - An Analysis. (Seafood Export J. 4; 1072

Reports analytical data of a survey of India export potential of marine products conducted by Indian Institute of Foreign Trade.

11 MOORJANI (MN). Export trade of seafoods. (J. Indus Trade. 21; 1971; 539).

The evergrowing overseas demand for Indian se foods especially shrimp has far outstipped the present production with the result that the indu is at present able to meet only a fraction of th effective demand.

Fish : Industry : Standardisation

12 BOSE (AN). Fishery industry : Processing and standardisation. (Indian Seafoods. 4; 1967; 7).

Discusses the peculiar problems in fish trade international standards for fishery products and standardisation in India.

13 MOORJANI (MN). Standardisation of fish and fishery products in India. (Paper presented at "Technic Conference on Fish Inspection and Quality Contro June 1969).

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14 SEN (DP). Problems of standardisation in fish processing industry in India. (Seafood Export J. 3; 1971; 131).

Discusses on improvement on the standards laid down on marine product with special reference to bacteriological standards.

Fish : Quality control

15 MODAWAL (CN). Quality control and preshipment inspection of marine products in India. (Seafood Trade J. 2; 1967; 55).

Reports that quality specifications and preshipment inspection raised the quality of the products and infused an overall quality conscionsress among the processors.

16 MOORJANI (MN). Some aspects of quality control of fish and fish products. (Indian Food Pack. 21; 1967; 9).

Suggests the need for specifying standards and for controlling the quality of fish and fish products with the object of improving their quality.

17 SAXENA (BS). Economic achievements of quality control and inspection in the marketing of fish and fishery products in India. (Indian Seafoods. 7; 1969; 7).

Fish : Processing

18 GOVINDAN (TK). Fisheries technological research in India. (Seafood Export J. 1; 1969; 15).

Critically reviews the development of fisheries technological research in India.

19 MOORJANI (MN). Some of the recent advances in processing of fish and fish products. (Seafood Export J. 2; 1969; 21).

Critically reviews some of the recent developments in processing of fish and fish products.

20 ANON. On the quality of ice to be used in fish processing factories. (Fish Technol News Lett. 7; 1966; 7).

Reports the different sources of ice contamination and suggests washing it with chlorinated water before using for fish preservation.

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21 PILLAI (VK). Recent developments in fish processing and preservation. (Fish Tech. 3; 1966; 90).

Critically reviews the major developments that have taken place in the fish preservation and processing fields.

Fish : Processing application of physics

22 RAO (CVN). Physics in fish processing technology. (Fish Tech. 8; 1971; 1).

Points out the impact of physics in fish processing technology by way of development of sophisticated techniques and instrumentation needed for research.

Fish: Processing; Water; Quality

23 MATHEN (C). A survey of the chemical quality of water used in the fish processing industry. (Fish Tech. 8; 1971; 109).

Presents data on the chemical characteristics of one hundred samples of water used in the fish processing industry in and around Cochin during 1966 to 1970.

Fish : Processing - Equipment : Hygiene

24 IYER (TSG). Essentials of fish plant sanitation. (Seafood Export J. 5; 1973; 19).

Describes the minimum hygienic requirements, organisation of sanitation programme, inspection techniques in sanitation assessment and micro-biological methods in sanitation assessments of fish processing establishments.

Fish : Processing : Hygiene

25 IYER (TSG) and KANDORAN (MK). A proforma for assessment of the levels of sanitation in fish processing establishments. (Fish Tech. 9; 1972; 109).

Different aspects of sanitation which may directly or indirectly affect the quality of the end product in fish processing have been dealt with. A proforma for the assessment of hygienic conditions has been given.

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Fish : Preservation -(using) Isapghool

26 ANO Preserving fish for long. (Indian Fmg. 16; 1966; 49).

Reports that 4% of jeel of isapghool (Plantago isapgola) gave optimum prolongation to the storage life of fish kept at a low temperature.

Fish : Blanching ; Blanch liquor ; Protein

27 VENUGOPALAN (V) and others. Protein from blanch liquor. (Fish Tech. 7; 1970; 143).

Deals with the investigations made on a method of recovery of the proteins from blanch liquor in the form of a powder and on the yield and characteristic of the protein itself.

Fish : Drying : Salting ; (using) Sodium benzoate and sodium bicarbonate

28 JOSEPH (KC) and SRINIVASAN (R). A note on the use of sodium benzoate and sodium bicarbonate in the preparation of dried salted fish. (Madras J Fish. 4; 1967; 88).

Gives a note on the possible use of a mixture of common salt, sodium benzoate and sodium bicarbonate for the preparation of dried salted Sardinella sp., Lactarius sp. and Dussumieria sp.

Fish : Drying - Hot air

29 BALACHANDRAN (KK). An accelerated method of hot air drying of fish. (Fish Tech. 6; 1969; 124).

Deals with the studies on the effects of temperature and relative humidity on the rate of drying of split open fish and salted fish in a tunnel dryer at a constant air velocity.

Fish : Drying - Drier : Design

30 SWAMINATH (M). Design of a half ton dehydrator for fish. (Fish Tech. 1; 1964; 76).

Designs a half ton capacity artificial dryer at the Central Institute of Fisheries Technology for drying fish like mackerel, sardine, white bait etc.

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Fish : Freezing

31 GOVINDAN (TK). Research on freezing preservation of fish in India. (Indian Food Pack. 26; 1972; 52).

Critically reviews the research on freezing preservatiin of fish in India and its effect on the economy of the whole fishing industry.

32 PILLAI (SA). The role of refrigeration in fish processing industry. (Indian Food Pack. 23; 1969; 18).

Concludes that refrigeration is playing a very important role in fish processing industry in Indi

33 SHENOY (AV) and JAMES (MA). Freezing characteristics of tropical fishes - II- Tilapia (Tilapia Mosambic (Fish Tech. 9; 1972; 34).

Presents the significant variations in the free ing characteristics of Tilapia from fresh water an brackish water sources.

Fish : Freezing : Glazing

34 JADHAV (MG) and MAGAR (NG). Preservation of fish by freezing and glazing. II. Keeping quality of fish with particular reference to yellow discolouration and other allied organoleptic changes on prolonged storage. (Fish Tech. 7; 1970; 146).

Presents the studies on the extent of organoleptic changes like development of undesirable discolouration, formation of unpleasant odours and deterioration in texture, conditinn of eyes, gills etc., occurring in fish during preservation by freezing and prolonged frozen storage with and without glazing.

35 JADHAV (MG) and MAGAR (NG). Preservation of fish by freezing and glazing. III. Effect of freezing, glazing and frozen storage on the B-vitamins and essential minerals present in the fish flesh. (Fish Tech. 7, 1970; 158).

Reports the results of the changes occurring in B-vitamins and essential minerals of pomfrets, surmai and mackeral frozen, glazed with ascorbic acid, citric acid, sodium chloride and glucose and sodium nitrite, and kept under frozen storage upto 6 months.

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Fish : Freezing : Cold storage -(for) Export

36 SACHIDANANDAN (A). Freezing and cold storage for fishery exports. (Seafood Export J. 5; 1973; 13).

Critically reviews the major developments of freezing and cold storage facilities for fishery exports in India.

Fish : Freezing : Equipment

37 MOORJANI (MN). Plant equipment, handling and sanitation practices in fish processing and freezing plants in India. (Seafood Export J. 1; 1969;15).

Critically reviews problems associated with handling of fresh fish,freezing plants and sanitary conditions, problems associated with canning, fish curing and its,modernisation to meet hygienic standards, and need for mechanization of operations for fish meal and oil in India.

Fish : Freeze drying

38 ANON. Freeze drying of fishery products. (Seafood Trade J. 3; 1968; 43).

Gives a brief report on the subject of freeze drying of fish, shell fish and fishery products discussed at a seminar held under the auspices of the Central Institute of Fisheries Technology, Ernakulam, India.

39 GOVINDAN (TK). Freeze drying and its application in fish preservation. (Seafoo. Export J. 5; 1973;139).

Gives a detailed account of the process of freeze drying and its advantages for fish preservation.

40 GOVINDAN (TK). Freeze drying of fishery products. Part I - Drying characteristics of some common Indian food fishes. (Res & Indus. 13; 1968; 203).

The effect of prefreezing, evaporative freezing, presence of fat in the fish on the drying rates and reconstitution behaviour of the freeze dried stuffs have been assessed.

41 GOVINDAN (TK) and others. The prospects of freeze drying in India. (Indian Food Pack. 23; 1969; 27).

Presents the views on the prospects of freeze drying of fish in India.

42 & 43 MOORJANI (MN). Accelerated freeze-drying of marine products : Technological developments. (Proc. All India Seminar on Food Industries. 1969, 40 and 1970; 1).

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Fish : Curing : Industry

44 GOVINDAN (TK). Our fish curing industry. (Indian Food Pack. 23; 1969; 33).

Critically reviews the progress in fish curing industry in India.

Fish : Curing

45 JOSEPH (KC) and SRINIVASAN (R). On the fish curing practices at Cape Comorin. (Madras J Fish. 4; 1967; 71).

Gives an account of the curing practices for the different varieties of fishes at Cape Comori

Fish : Curing ; Hygiene

46 ANON. Cleanliness counts in fish curing. (Indian Fmg. 15; 1966; 32).

States in brief a few mathods of curing fish.

Fish : Curing ; Salt ; Quality

47 SRINIVASAN (R) and others. On the chemical quality of common salt used in the fish curing industry in madras state. (Madras J Fish. 3; 1967; 140).

Reports that the quality of salt used in fish curing industry in Madras State is of a low grade due to the scarcity of good quality salt in the market and needs to be remedied.

Fish : Salting : Drying effect on Nitrogenous substance

48 GOVINDAN (TK). Studies on salting and drying of fish with special reference to changes in nitrogenous constituents. (Indian Food Pack. 23; 1969; 18).

Reports the results of changes occurring in moisture, sodium chloride, salt extractable nitrogen, non-protein nitrogen and free -amino acid nitrogen in dressed sardine and mackerel during heavy salting and subsequent drying.

Fish : Irradiation

49 ANON. Atomic energy for improving storage of seafoo new technique of radiation pasteurization. (Seafo Trade J. 1, 1966; 25).

Refers to the use of radiation pasteurization methods for cod, haddock etc. in the USA and successful radiation pasteurization of prawns and Bombay duck in India.

Fish : Chemical preservation ; Chlortetracycline

50 MOORJANI (MN). Preservation of fish with tetracycline antibiotics. (Indian Food Pack. 21; 1967; 5).

Reports the use of chlortetracycline for dry-salted fish and of chlortetracycline ice for preservation of fish in India.

51 ANON. Use of antibiotics in preservation of fish. (Fish Tech. News Lett. 8; 1967; 3).

Deals with the effectiveness of chlortetracycline in extending the shelf-life of fish under certain conditions of storage.

Fish : Packaging

52 BOSE (AN). Packages of fishery products. (Indian Seafoods. 8; 1970; 5).

Describes in detail packaging of fishery products for internal market and export.

53 RAO (CVN) and PERIGRIEN (PA). Studies on packaging of fresh fish. (Fish Tech. 1, 1964; 68).

Studies have shown that iced fish can be preserved for longer periods in fresh and edible condition in conventional bamboo baskets by providing additional insulated linings of double layer of gunny and polythene or betumen coated kraft paper.

Fish : Packaging - Plastic container : Hygiene

54 DANI (NP). Towards a more hygienic fish container. (Seafood Export J. 2; 1970; 65).

Recommends that use of plastic containers will stimulate consumption of hygienic and better quality fish in India, improving the nation's nutritional standards.

Fish : Canning : Research

55 GOVINDAN (TK). Research on fish canning in India - a review. (Indian Food Pack. 26; 1972; 25).

Critically reviews the development of research on fish canning in India.

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Fish : Cannery : Planning

56 SARALAYA (KV) and PARASHURAM (P). Some aspects of plant planning, lay-out and construction for seafoods canning. (Seafood Export J. 4, 1972; 23

Two model lay-outs, one for a shrimp cannery and another for a tuna cannery have been presented for assisting the new entrants to the fish canning industry.

Fish : Canning

57 ANON. Canning of Lactarius. (Fish Tech. Lett. 6; 1965; 1).

Gives the details of the process developed at the Central Institute of Fisheries Technology, Ernakulam, India, for canning Lactarius in oil.

58 SARALAYA (KV). Five essentials for success in canning of fishery products. (Seafood Export J. 5; 1973; 153).

Stresses that quality, yield, efficiency, sanitation and safety are the five essentials for success in canning of fishery products.

59 SARALAYA (KV) and PARASHURAM (P). Studies on the canning yield of some important marine fishes of the West Coast of India. (Seafood Export J. 3; 1971; 125).

Deals with the results of studies on the dressing ratio, percentage yields and yield rates obtained in the canning of Rastrelliger kanagurta, Sardinella longiceps, Stromateus cinereus, Scomberomorus sp. and Euthynnus affinis.

Fish : Canning - (in) Curry

60 RAI (BS) and others. "Curry" as a packing medium for canned fishery products. (Indian Food Pack. 25; 1971; 19).

Describes the method of preparation of a "curry" suitable for use as a packing medium for canned mackerel, sardine and shrimp.

Fish : Transport

61 ANON. Long distance transport of fish. (Fish Tech. News Lett. 8; 1967; 1).

Comments on the methods adopted for storage, preservation and transportation of fish and suggests some methods developed by the Central Institute of Fisheries Technology, Ernakulam, Indi

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62 SRIPATH[illegible] (V). Transportation of fresh fish. (Seafood Export J. 5; 1973; 17).

Critically reviews on transportation of fish in India with special emphasis on factors affecting freshness of fish, principles of good handling and sanitation.

Fish; Quality : Evaluation ; Sensory method

63 IYER (HK). Methods of sensory evaluation of quality and application of statistical methods in sensory evaluation problems with special reference to fishery products. (Fish Tech. 9; 1972; 104).

Sensory evaluation is one of the reliable methods for evaluation of the freshness of raw and processed fish products. Existing methods of sensory evaluation and the statistical methods for assessing the quality of raw ands processed fish have been reviewed.

Fish ; Colour ; Retention influenced by curing

64 MATALIA-DE[illegible]I (TS) and CHANDRASEKAR (TC). A method for curing the meat for the purpose of colour fixation. (Seafood Export J. 4; 1972; 25).

A formula for the preparation of the curing mixture and procedure for curing the meat for the purpose of colour fixation have been described.

Fish ; Chemical composition

65 RAHAMAN (AA). The chemical composition of the Lamellibraneh Donax cuneatus Linn. (Proc Indian Acad Sci-B. 62; 1965; 188).

The detailed chemical composition of the organic contents viz., fat, carbohydrates and amino acids, of the Lamellibranch Donax cuneatus Linn. has been described.

Fish : Flavour relation Nucleotide

66 RAJA [illegible] and MOORJANI (MN). Nucleotides - a study of [illegible] degradation in fish under various conditions and its impact on flavour. (J Food Sci Tech 8; 1971; 3).

Critically reviews the important role of nucleotides, especially inosine 5 monophosphate (IMP) in maintaining and also in enhancement of the flavour of fishery food products.

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Fish ; Off flavour : Test

67 BASU (AK). A method for fish tainting test. (Sci & Cult. 31; 1965; 591).

Suggests a comprehensive method for determination of off-flavour or tainting of fish.

Fish ; Spoilage - Microbial

68 SEN (R) and others. The bacterial flora and their possible association with spoilage in a variety of fresh water fish : Cyprimus carpio var. Communis. (Fish Tech. 3; 1966; 124).

Reports that six bacterial strains found on the surface and/or intestine of the fish were responsible for causing the spoilage of fish.

Fish ; Infestation - Insects

69 ANON. Prevention of insect attack in "massmin". (Fish Tech. Digest News Lett. 9; 1968; 4).

Deals with the valnerability of processed tuna or "massmin" to insect attack and suggests various preventive measures.

70 RANGASWAMY (JR) and SURYANARAYANA RAO (SV). Problems of insect infestation in fish and fish products. (Seafood Export J. 1; 1969; 15).

Gives an account of insect infestation in fishery products like salted fish, pickled fish and fish meal and of the effective methods of controlling it.

Fish ; Microflora

71 IYER (TSG) and PILLAI (VK). Distribution of coliforms in fresh fishery products and environments. (J Food Sci Technol., 8; 1971; 146).

Reports the presence of Escherichia coli, Escherichia freundii and Acrabacter aerogenes in raw prawns, froglegs, utensils, water and ice.

72 MATHEN (C) and CHAMDHURI (DR). Factors influencing colour production from the sugar medium used for the rapid approximation of bacterial counts in fishery products. (Fish Tech. 2; 1965; 144).

Reports the factors influencing the colour production from the sugar medium used for the rapid approximation of bacterial counts in fishery products.

Fish ; Salmonella

73 JAMES (MA) and IYER (KM). Studies on isolation of Salmonella from seafoods. I - Comparison of enrichment and selective media for recovery of Salmonella from fish. (Fish Tech. 9; 1972; 115).

Total absence of Salmonella in the raw and processed fish is essential for the protection of consumer comparative efficiency of three enrichment broths and six plating media for the detection of Salmonella have been given.

Fish ; Nitrogen

74 RAHAMAN (A). Nitrogen content of the lamellibranch Donax cuneatus Linn. (Curr Sci. 34; 1965; 217).

States the nitrogen content of Donax cuneatus Linnaeus occurring along the sandy shores of Tondi.

Fish ; Mercury

75 SOMAYAJULU (BLK) and RAMA. Mercury in seafood from the coast of Bombay. (Curr Sci. 41; 1972; 207).

Concentrations of mercury in seafood collected from coastal waters off Bombay are reported.

Fish ; Propionic acid

76 VELANKAR (NK). Free proponic acid in the skeletal muscle of elasmobranchs. (Curr Sci. 34; 1964; 586).

Compares the presence of free propionic acid in the skeletal muscle of elasmobranchs and teleosts

Fish ; Peptone - Microbial

77 ANON. Bacteriological peptone from trash fish. (Fish Tech News Lett. 8; 1967; 1).

Gives a laboratory method of preparation of good quality peptone from trash fish for bacteriological media.

Fish ; Vitamin A, Copper and Iron

78 CHARI (ST) and SABAPATHY (M). Vitamin 'A', copper and iron in the east coast marine fishes available at Tuticorin. (Madras J Fish. 2; 1966; 91).

Reports the amounts of vitamin 'A', copper and iron in 21 marine fishes.

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Fish ; Ascorbic acid

79 SIDDIQUI (MA). Seasonal variations in ascorbic aci content of different tissues of Ophiocephalus panctatus bloch. (Indian J Exper Biol. 5; 1967;

Suggests the role of ascorbic acid in initiat the mobilization of calcium for the regeneration of gonads.

80 SREENIVASAN (A) and SABAPATHY (N). Ascorbic acid content of some freshwater fishes of Bhavanisagar reservoir. (Curr Sci. 36; 1967; 51).

Reports the ascorbic acid contents of the musc gonad, liver and pituitary gland of six species o fishes and crocodile from Bhavanisagar reservoir.

Fish ; Fatty acid

81 .. GOPAKUMAR (K) and NAIR (MR). Fatty acid composition of eight species of Indian marine fish. (J Sci Food Agric. 23; 1972; 493).

Reports in detail on the fatty acids present in the body oil of 6 species of fish, one sample of liver oil and the lipids of the shell fish.

Fish ; Cholesterol

82 SIDDIQUI (MA). A comparative study of some biochemical constituents in different tissues of some freshwater teleosts II - Total cholesterol. (Sci & Cult. 32; 1966; 136).

Gives a picture of the cholesterol content of the different tissues of some freshwater teleosts of the northern part of India.

83 SIDDIQUI (MA). Seasonal variations in total cholesterol content in different tissues of Ophiocephalus punctatus Bloch. (Indian J Exp Biol. 4; 1966; 122).

Reports the seasonal variations in total cholesterol content in serum, muscle, liver and gonads of Ophiocephalus punctatus.

Fish ; Phospholipid : Fractionation ; Chromatography.

84 GOPAKUMAR (K) and NAIR (MR). Phospholipids of five Indian food fishes. (Fish Tech. 8; 1971; 171).

Describes quantitative fractionation of phospholipids of five Indian food fishes determined by using column and thin layer chromatography.

Fish ; Methionine

85 GOWRI (V) and others. Methionine content of some important species of Indian fishes. (Fish Tech. 9; 1972; 180).

Concludes that the species of the genus Labeo, Cyprinus carpio and Catla catla are rich in methionine content.

86 VASANTHA (MS) and others. Modified colorimetric method based on MeCarthy and Paille procedure for estimation of methionine. (Biochem Biophys Res Comm. 41; 1970; 568).

Describes the standardization of McCarthy and Paille method in terms of the quantities of reagents to be added and the time of reaction using hydrochloric acid instead of heptafluoro butyric acid.

Fish ; Protein

87 MENON (KKP). Protein from the sea. (Seafood Export J. 2; 1970; 31).

Gives in detail the sources of protein from the sea which may be the ultimate answer to the problem of protein deficiency in India.

Fish Protein Concentrate

88 ISMAIL (PK) and others. Studies of the preparation of fish protein concentrate. (Fish Tech. 5; 1968; 53).

Deals with the method of preparation of an edible fish protein concentrate from cheap miscellaneous fish.

89 MOORJANI (MN). Fish protein concentrates in combating malnutrition. (Indian Food Pack. 26; 1972; 47).

Critically reviews the role of fish protein concentrates in combating protein malnutrition.

90 MOORJANI (MN) and VASANTHA (MS). Fish protein concentrates - Recent advances. (J Food Sci Tech. 10; 1973; 3).

Critically reviews in brief some of the developments of FPC during the past decade.

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91 MOORJANI (MN) and LAHIRY (NL). Fish protein concentrate story IX : Efforts in India. (Food Tech 24; 1970; 56).

Describes briefly pertinent development work carried out in India on the possibilities of converting surplus and low-cost varieties of fish into acceptable and highly nutritious fish protein concentrate (FPC).

Fish Protein Concentrate ; Quality

92 MOORJANI (MN) and others. Quality of fish protein concentrate by direct extraction of fish with various solvents. (Food Tech. 22; 1968; 1557).

Reports the properties of fish protein concentrate prepared by extraction with ethanol, isopropanol, or acetone of wet whole or eviscerated fish.

Fish Protein Concentrate ; Incorporated -(with) Cassava

93 MOORJANI (MN). Fish protein concentrate story, 12- Processing of fish enriched wafers. (Food Tech 24; 1970; 1378).

Presents the results of investigations carried out with a view to incorporate fish protein concentrate along with Cassava (Manihot utillissima) and process it in an attractive and novel form for a high marketability.

Fish Protein Concentrate -(from) Bombay duck ; Quantity influenced by Processing

94 SEN (DP) and others. Fish protein concentrate from Bombay duck (Harpoden nehereus) fish : Effect of processing variables on nutritional and organoleptic qualities. (Food Tech. 27; 1969; 683).

Reports the results of studies on the effect certain processing variables on nutritional, bacteriological and organoleptic quality of fish protein concentrate (FPC) prepared from Bombay duck (Harpoden nehereus).

Fish - Processed ; Quality - Microbial influenced by Ice

95 IYER (TSG) and CHOUDHURI (DR). Influence of ice on bacteriological quality of the processed fishery products. (Fish Tech. 3; 1966; 113).

Reports the sources of contamination of ice and the effect of the latter on the bacteriological quality of the processed fishery products.

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Fish - Processed ; Contamination - Microbial

96 IYER (TSG) and others. Studies on the possible sources of microbial contamination of processed fishery products. (Fish Tech. 3; 1966; 44).

Describes in detail the nature and extent of contamination of processed fishery products.

Fish - Minced - Curry - Dehydrated

97 CHAKRABARTY (TK) and others. Studies on the development of dehydrated curried fish mince. (Indian Food Pack. 26; 1972; 50).

Reports the method of preparation of dehydrated curried fish mince and its proximate composition.

Fish - Dried ; Quality

97a SRINIVASAN (R) and others. A study of the quality of dried white baits in the trade. (Madras J of Fish. 3; 1967; 61).

Describes the condition and quality of dried Anchoviella sp. of the market with suggestions to improve the product.

Fish - Dried ; Moisture : Estimation

98 ANON. A rapid method for estimation of moisture in dry fish. (Fish Tech News Lett. 8; 1967; 7).

Reports a quick and efficient method for estimating the moisture content in a large number of dry fish samples.

Fish - Dried - Salted : Chemical Preservation - (with) Chlortetracycline

99 JOSEPH (KC) and SRINIVASAN (R). Use of chlortetracycline as a preservative for dry salted fish. (Madras J Fish. 3; 1967; 17).

Reports the results of studies carried out on the effect of chlortetracycline at 5, 10, 15 and 25 ppm level for the preparation of dry salted fish.

Fish - Iced : Leaching

100 GOVINDAN (TK). The problem of leaching in iced fish. (Indian Food Pack. 25; 1971; 27).

Suggests that the processor must reduce the pre-
process storage period of prawn in ice to the

minimum so as to retain the maximum nutrients and flavour bearing compounds and thereby to maintain high overall quality of the processed product.

Fish - Frozen : Coating -(with) Sodium alginate

101 PILLAI (VK). Studies on the use of Alignates in frozen fishery products. (Fish Tech. 1; 1964;176

States results of preliminary studies on the use of Sodium alignate as a protective coating f fishery products showing that several varieties of fishes and shell fish had better keeping qual ties when coated with Sodium alignate.

Fish - Frozen - Glazed ; Microflora

102 JADHAV (MG) and MAGAR (NG). Preservation of fish by freezing and glazing. I - Bacteriology of fre frozen and glazed fish. (Fish Tech. 7; 1970; 86

Deals with the study of the effect of freezin i.e. quick freezing, slow-freezing, block freezi glazing fish thereafter and frozen storage in different containers on bacterial load and bacte rial types.

Fish - Frozen - Cold stored ; Rancidity : Preven tion ; Glazing -(with) Antioxidant

103 HIREMATH (GG). Prevention of rancidity in frozen fatty fishes during cold storage. (Indian Food Pack. 27; 1973; 20).

Experimental results show that glazing with antioxidants are effective in preventing rancidi in frozen fatty fishes during cold storage.

Fish - Dry cured ; Moisture : Measurement ; Infrared irradiation

104 RAO (CVN) and others. Measurement of moisture in dry cured fish by infrared irradiation. (Fish Tech. 4; 1967; 28).

Deals with a quick method for determining moisture content in cured fishery products by irradiation.

Fish - Salt cured ; Quality : Survey

105 SRINIVASAN (R) and JOSEPH (KC). A survey of the quality of salt-cured fish produced in the Kanya kumari District, Tamilnadu State. (Fish Tech. 3; 1966; 103).

Abstract ...19

Reports the results of a survey of the quality of salt-cured fish in Kanyakumari District, Tamilnadu, carried out during the years 1963 and 1964 to obtain necessary basic information to formulate quality standards for these important export items.

Fish - Salted : Chemical Preservation -(with) Acetic acid

106 JOSEPH (KC) and SRINIVASAN (R). A note on the preservative action of acetic acid applied as a spray over salted fish. (Madras J Fish. 3; 1967; 44).

Reports the effects on the keeping quality of salted fish when treated with 1% acetic acid before drying.

Fish - Salted ; Equilibrium relative humidity influenced by calcium and magnesium

107 IYENGAR (JR) and SEN (DP). The equilibrium relative humidity relationship of salted fish (Barbus carnaticus and Rastrelliger Canagurta) : The effect of calcium and magnesium as impurities in common salt used for curing. (J Food Sci Tech. 7; 1970; 17).

Calcium and magnesium salts decreased the equilibrium moisture contents corresponding to different relative humidities ranging from 10 to 100 per cent of Barbus Carnaticus and Rastrelliger canagurta salted with sodium chloride, with or without calcium chloride or magnesium chloride

Fish - Salted - Dried ; Shelf life

108 RAO (SVS) and others. Storage behaviour of salted and dried fish in relation to humidity conditions. (Indian J Fish. 9; 1965; 156).

Studies the general keeping quality of dry salted fish stored under different relative humidities with particular reference to the onset of spoilage caused by moulds and red halophiles and attempts to determine the equilibrium moisture curve of the samples under these conditions.

Fish : Packaged-(in) Plastic pouch : Processing

109 JOSEPH (KC) and JAYACHANDRAN (P). Processing of fish in flexible pouches. (J Food Sci Tech. 9; 1972;206)

The studies reveal that fish can be processed in flexible pouches made of either 4 ply laminate or densothene. The processed fish can be preserved upto 45 days under normal conditions of room temperature.

...20.

Fish - Canned : Heating

110 RAO (CVN) and PRABHU (PV). Heat distribution pattern in canned prawns. (Indian Food Pack. 25; 1971; 20

During the sterilization process the slowest hea ing zone in the can filled with cooked prawns was found to lie midways between the geometric centre and bottom of the can on the central longitudinal oxis and the mechanism of heat transfer was predom natly convection type.

Fish - Canned - Spoilage - Microbial

111 DE (KC). Leaker spoilage in canned foods and its prevention. (Indian Seafoods. 5; 1967; 7).

Gives an account of the sources of microbiologi spoilage of canned foods and the precautions neces for its control.

Fish - Flour ; Fluorine

112 MISRA (KC) and SAROJ (KK). Fluorine in fish flour. (J Food Sci Tech. 7; 1970; 110).

Reports the fluoride content in the fish flour ranging from 19 to 30 ppm.

Fish - Meal

113 MADHAVAN (P). Prospects of fish meal manufacture in India. (Seafood Export J. 1; 1969; 27).

Describes the methods of fish meal manufacture in India and its prospects as livestock feed.

Fish - Meal : Analysis

114 SEN (DP) and KESHAVA (N). Certain observations on th analysis of fish meal. (Indian Food Pack. 25; 197 21).

Suggests certain modifications to the Indian Standard for fishmeal in the light of the data presented in the paper.

Fish - Meal ; Quality

115 KAMASASTRI (PV) and RAO (DR). Studies on Indian fish meals. Part I. Chemical composition and storage characteristics of fishmeals prepared from differe types of fishes. (Indian J Fish. 9; 1965; 108).

Abstract ...21

Studies the chemical composition of fishmeal prepared from different varieties of fish and the changes in the nitrogen and fat components during the storage period.

Fish - Meal - Sun dried ; Quality

116 RAO (DR) and KAMASASTRI (PV). Quality of fishmeal processed from sun-dried fish in a commercial fishmeal dryer. (Fish Tech. 8; 1971; 51).

Reports the studies on the physical and chemical compositions of the raw materials received and on the composition and nutritive values of the finished products in a commercial size fishmeal plant employing the dry rendering process.

Fish - Flake

117 VENUGOPALAN (V) and GOVINDAN (TK). Utilisation of trash fish. I -Preparation of fish flake. (Fish Tech. 4; 1967; 35).

Deals with the investigations carried out on the preparation of odourless fish-starch flakes using partially deodorised trash fish meat and different sources of starch like corn, tapioca, maida and blackgram.

Fish - Paste : Industry

118 CHANDRASEKHAR (TC). Fish paste products in the Indo-Pacific region. (Seafood Export J. 5; 1973; 27).

Gives a brief countrywise account of the fish paste indusfry in the Indo-Pacific region

119 CHANDRASEKHAR (TC). Fish paste products industry in Japan. (Seafood Export J. 2; 1970; 17).

The manufacturing process of fish sausage and ham, quality control, types of spoilages, chemical composition, and traditional fish paste products in Japan have been described.

Fish - Sausage : Industry

120 YERMAL (JR). Fish sausage manufacture and future prospects of the industry. (Seafood Export J. 2; 1970; 19).

Processing method, composition, preservatives and furure prospects of the fish sausage industry have been described.

...22

Fish - Sausage ; Quality : Evaluation

121 UDUPA (KS) and KULKURNI (GK). Sequential analysis f testing quality standard of fish ham and sausage. (Fish Tech. 9; 1972; 5).

Concludes that if fish ham and sausage are mas produced, single sampling is most suitable and th if the production is on small scale, lot by lot acceptance by sequential analysis is the most con nient.

Fish - Sausage ; Shelf life influenced by Preserv

122 KRISHNASWAMY (MA) and PATEL (JD). The effect of cer preservatives on the shelf-life of fish sausage. (J Food Sci Tech. 9; 1972; 10).

Reports the results of shelf-life studies cond ted at room temperature and at 37°c of fish sausa with certain preservatives.

Fish - Sausage ; Shelf life : Evaluation ; Sensor evaluation

123 KRISHNASWAMY (MA) and others. Shelf life, sensory evaluation and economy of fish sausage on a pilot plant scale. (J Food Sci Tech. 5; 1968; 186).

States the results on shelf-life and sensory evaluation of fish sausage manufactured on a pilo plant scale with sorbic acid and sodium benzoate preservatives.

Fish - Sausage ; Microflora

124 YERMAL (JR) and others. Some microbiological problems associated with fish sausage manufacture. (Seafood Export J. 4; 1972; 33).

Preparation of fish sausage, its different constituents and spoilage of the sausage have been dealt with.

Fish - Soup - Powder

125 ANON. Soup powder from trash fish. (Fish Tech News Lett. 8; 2968; 5).

Reports the method of preparation of good quali soup powder out of trash fish worked out at the Central Institute of Fisheries Technology, Ernakulam, India.

...23

Fish - Soup - Ready mix

126 VENUGOPALAN (V) and JAMES (MA). Utilisation of trash fish. II. Studies on preparation of fish soup mix. (Fish Tech. 6; 1969; 148).

Deals with the investigations carried out on the preparation of fish soup mix using partially deodourised trash fish meat.

Fish - Soup - Ready Mix - instant: Freeze drying

127 GOVINDAN (TK). Freeze drying of fishery products. Part III - Preparation of instant soup mixes and prawn cake and their preservation by freeze drying. (Res & Indus. 15; 1970; 162).

Techniques are described for the preparation of instant soup mixes from two common Indian fishes, seer and Cullawah and a fish cake from canned prawns. The preparations show good keeping behaviour after being subjected to freeze drying.

Fish - Salad - Pre cooked - Ready to serve : Freeze drying.

128 GOVINDAN (TK). Freeze drying of fishery products. Part II - Development and freeze drying of pre-cooked, ready-to-serve fish salads. (Res & Indus. 14; 1969; 120).

The results of this study indicate that high calorie, ready-to-serve, freeze dried salads can be prepared from different varieties of fish.

Fish - Convenience Food

129 GOVINDAN (TK). "Convenience" foods from fish. (Seafood Export J. 4; 1972; 157).

Describes the methods of preparation of a number of fish products from different varieties of fish available in India.

Fish - Muscle ; Biochemical composition

130 KHAWAJA (DK). Biochemical composition of the muscle of some freshwater fishes during the pre-maturity phase. (Fish Tech. 3; 1966; 94).

Presents the data on the biochemical composition of the muscle of juveniles belonging to 18 different species of freshwater fishes.

...24

Fish = Muscle ; Nitrogen - Non protein

131 GOVINDAN (TK). Non-protein nitrogen compounds in fish muscle - their distribution and functions in the fish body and significance in quality control. (Indian Food Pack. 24; 1970; 11).

Indicates that non-protein nitrogen compounds p a very important role in the physiological functio of the fish muscle and that since they are highly soluble in water, storage of the fish in ice inter feres with their direct application in quality control.

Fish = Muscle ; Protein ; Extractability influence by Fatty acid

132 DEVADASAN (K) and NAIR (MR). Effect of C_{18} unsaturat fatty acids on the extractability of fish muscle proteins. (Fish Tech. 8; 1971; 107).

Gives an account of some of the factors which govern the extractability of proteins from teleos and crustacean muscle under the influence of certa added C_{18} - unsaturated fatty acids.

Fish = Muscle - Stored -(in) Ice ; Protein ; Variability.

133 BALIGA (BR) and others. Fractionation of muscle prote of fresh water fish and changes during iced storag (J Food Sci. 34; 1969; 597).

Reports the results of experiment on fractiona- tion of muscle proteins of four varieties of fresh water fish after storage in ice.

Fish = Ham

134 CHANDRASEKHAR (TG) and DESAI (TS). Fish ham. (Seafood Export J. 4; 1972; 9).

Various steps in the manufacture of fish ham have been described.

Fish = Ovary ; Biochemical Composition

135 JAFRI (AK) and QUASIM (SZ). Studies on the biochemic composition of some freshwater fishes. III. Ovary. (Fish Tech. 3; 1966; 16).

Deals with the biochemical analysis of spent Ovaries of 23 different species of freshwater fishes.

...25

Fish = By product - (for) Poultry feed : Processing

136 MOORJANI (MN). Processing and utilisation of fish industrial byproducts for poultry feeds. (Paper presented at the short-term course on "Poultry Nutrition, Feeding and Feed Processing," 14-18 May 1973, IVRI, Izatnagar).

Fish = Ensilage - (for) Animal feed

137 ANON. Fish ensilage by fermentation method. (Fish Tech News Lett. 7; 1967; 5).

Gives the method of preparation of fish ensilage for incorporation in cattle feeds.

138 JAMES (MA). Ensiled product from fish by microbial fermentation. Fish Tech. 3; 1966; 38).

Gives a method of preparation of fish ensilage for animal feed stuff from Pseudosciaena sp. and Leiognathus sp. by fermentation with pure culture of Lactobacillus piantarum NCIB 6105.

Shark : Salting

139 MATHEN (C). Quality and shelf life of dried sharks produced in India. (Fish Tech. 7; 1970; 213).

Recommends that salting shark flesh in 1:3 ratio and allowing to cure in self brine for more than 12 hours followed by drying give a product with satisfactory shelf life.

Shark - Flour ; Nutritive value

140 SURYANARAYANA RAO (SV) and RANGASWAMY (JR). Nutritive value of fish flour from shark meat. (Proc. Asian Congress of Nutrition (First)(Hyderabad), 1972; 807.

Shark = Fin = Ray : Extraction

141 ANON. Extraction of shark fin rays. (Fish Tech News Lett. 7; 1967; 1).

Suggests the export of shark fin rays instead of the fins and gives the methods of its extraction.

Shark = Liver; Oil

142 KAMDAR (LD) and others. Studies on shark liver oil and its residue. (Fish Tech. 4; 1967; 21).

Abstract...26.

Deals with the seasonal variation in oil and moisture contents and vitamin A potency of oil in livers from different species of sharks landed at the Veraval Coast and also gives the values of moisture, protein, ash and vitamins in defatted liver residue.

Sardine

143 GOVINDAN (TK). Salience of sardine. (Sci Repter. 4; 1967; 562).

Gives the distribution and economic importance of oil sardines.

Sardine : Industry

144 SEN (DP). Oil-sardine - a growing industry in India (J Industr & Trade. 22; 1972; 74).

Quantitatively, oil-sardine is the most important fish in India with an immense possibility to increase the landing. A new area of fish-technology based on it can be developed. Growth of oil-sardine technology will make the fishery qualitatively important.

Sardine : Preservation

145 GOVINDAN (TK). The oil: sardine - an energetic food and potent industrial raw material. (Seafood Export J. 4; 1972; 37).

Gives an account of the biology and fishery of Sardinella longiceps, methods of preservation of the fish, extraction of sardine oil etc.

Sardine : Freezing

146 KAIMAL (PNR). Freezing of oil sardines. (Indian Seafoods. 7; 1969; 21).

Describes the technical problems of freezing oil sardines and their remedies.

147 ANON. The Oil sardine. (Seafood Trade J. 1; 1966; 3

Reports the availability, habitat and the methods of quick freezing of oil sardine as developed at the Central Institute of Fisheries Technogy, Ernakulam, India.

...27.

148 SHENOY (AV) and PILLAI (VK). Freezing characteristics of tropical fishes. I. Indian oil sardines. (Fish Tech. 8; 1971; 37).

Deals with the study of the influence of different prefreezing ice storage periods on the biochemical and organoleptic qualities of Sardinella longiecps in the individual quick frozen and block frozen forms and frozen storage at temperature of 12°C and 25°C.

Sardine : Hot Smoking

149 MOORJANI (MN) and VASANTHA (M). Hot smoking of oil-sardines and mackerels. (Seafood Export J. 4;1972;25).

Desoribes a combined process of salting, boiling and smoking of oil-sardines and mackerels, and the quality aspects of the product.

150 MOORJANI (MN) and VASANTHA (M). Hot smoking of oil-sardines and mackerels - a short communication. (Seafood Export J. 4; 1972; 25).

Recommends a method of hot smoking of oil-sardine and mackerel for short term preservation under tropical conditions.

Sardine : Chemical Preservation

151 VISWESWARAIAH (K). Chemical preservation of sardine fish to obtain a good grade fish oil. Part 1. (J Food Sci Tech. 6; 1969; 103).

Of the different chemicals and antibiotic [illegible] screened to extend the keeping quality of oil sardine fish at room temperature (27-30°C) for more than 24 hours, continuous dip treatment in saturated sodium chloride solution containing 0.4 formaldehyde was found to be satisfactory.

152 VISWESWARAIAH (K). Chemical preservation of oil sardines (Sardinella longiceps) to obtain a good oil. Part 2. (J Food Sci Tech. 6; 1969; 173).

Compares the quality and yield of the oil obtained from freshly caught oil sardines with that of minced oil sardines packed with saturated sodium chloride containing 0.25 per cent formaldehyde.

...28.

Sardine : Packaging - (in) Sardine Oil

153 SEN (DP) and REVANKAR (GD). Use of sardine oil in sardine packs. (Indian Food Pack. 27; 1973; 20).

Concludes that properly extracted sardine oil which is almost bland, can be used for packing o sardine.

154 SEN (DP) and REVENKAR (GD). Use of Sardine oil in o sardine packs. (Seafood Export J. 3; 1971; 13).

Reports that sardine oil of standard quality cleared at 25-30°C can be used as such or blende with refined groundnut oil in 1:1 proportion for packing of oil-sardines.

Sardine : Canning

155 VASANTHA (MS) and MOORJANI (MN). Some aspects of th canning of oil sardine (Sardinella longiceps). (Indian Food Pack. 24; 1970; 11).

Reports the results of studies on processing a canning of oil sardine (Sardinella longiceps).

Sardine : Canning - (in) Oil

156 SRINIVASAN (R) and others. On the canning of Sardi- nella fimbriata, Sardinalla gibbosa and Sardinell sirm in oil pack. (Fish Tech. 3; 1966; 118).

Reports on the basis of detailed canning exper ments that Sardinella sp. landed on Madras Coast can be canned in oil pack and good canned product manufactured out of them.

Sardine ; Oil : Extraction

157 ANON. Extraction of sardine oil. (Fish Tech News Lett. 7; 1966; 1).

Reports the method developed at Central Insti of Fisheries Technology, Ernakulam, India, for th extraction of sardine oil at very little extra c and in a high state of purity.

Sardine ; Oil - Stored ; Quality ; Variability

158 KAMSASTRI (PV) and others. Further studies on the Indian sardine oil. (Indian J Fish. 9; 1964; 84)

Describes the storage changes in the commerci Indian sardine oils and the laboratory extracted oils.

...29.

Sardine ; Oil : Utilisation - (for) Ready mix paint

159 ANON. Utilization of sardine oil-preparation of ready-mix paints. (Fish Tech News Lett. 7; 1967; 8).

Suggests an economic use of sardine oil for preparation of paints in place of linseed oil.

Sardine ; Oil (for use in) Printing ink

160 ANON. Printing ink base from sardine oil. (Fish Tech News Lett. 8; 1967; 5).

Reports an improved method of preparation of printing ink from sardine oil as developed at the Central Institute of Fisheries Technology, Ernakulam, India.

Sardine - Cooked - Pressed - Stored ; Fatty acid ; Variability

161 RAJA (KCM) and MOORJANI (MN). Changes in colour and free fatty acid value of cooked and pressed oil sardine during storage at room temperature in ethanol. (J Food Sci Tech. 8; 1971; 14).

States the changes in the free fatty acid of the press cake prepared out of oil sardine after cooking and preserved in ethanol of 70 percent by volume over a period of 60 days.

Sardine - Frozen : Glazing

162 MATHEN (C) and others. Use of different glazes in frozen oil sardines. (Fish Tech. 3; 1966; 30).

Reports the results of the experiments carried out on the use of different anticxidants and coating materials on the freezing preservations of oil sardines and their relationship between storage life and oil content of frozen oil sardines.

Sardine - Frozen ; Belly bursting : Prevention

163 PERIGREEN (PA) and others. An effective method for reducing belly-bursting in frozen oil sardines. (Fish Tech. 6; 1969; 55).

The effect of size and fat content of sardines on belly - bursting phenomenon and storage characteristics of brine treated sardines have been studied.

...30.

Sardine - Frozen - Stored; Rancidity influenced by Glazing

164 SRIKAR (LN) and HIREMATH (GG). Fish preservation. I. Studies on changes during frozen storage of oil sardine. (J Food Sci Tech. 9; 1972; 191).

States the effect of various glazes in suppressin rancidity during frozen storage of oil-sardine.

Sardine - Chilled - Stored ; Nucleotide

165 CHERIAN (S) and NAIR (MR). Preliminary observations or changes in nucleotides in oil sardine and certain penaeid prawns during chill storage. (Fish Tech. 6; 1969; 36).

States the results of studies on the changes in common 5 nucleotides in oil sardine and two penaeid prawns of Indian waters during chill storage.

Microflora influenced by Sodium Chloride

166 APPURAJ (VE) and VALSAN (AP). Observations on the inhibitory effect of sodium chloride on molds met with in smoked fishery products. (Fish Tech. 3; 1966; 158).

Records an observation on the inhibitory action of sodium chloride on the development of molds in smoked oil sardine samples.

Sardine - Packaged - (in) oil effect of water

167 VARMA (PRG) and others. Effect of varying water contents in oil packed sardine and mackerel. (Fish Tech. 7; 1970; 95).

Presents the observations made in experiments on cans having varying water contents in the fill oil on shelf life of canned sardine and mackerel.

Sardine - Stored ; lipid; Breakdown

168 NAIR (MR). A preliminary study of the changes associated with lipid breakdown in oil sardine (Sardinella longiceps) stored at refrigerated temperatures. (Indian J Fish. 9; 1965; 126).

Studies the effect of storage at two temperature on the course of breakdown of lipids in oil sardine side by side with such changes as are brought out by the proteolytic action in the tissue during storage.

...31

Sardine - Stored - (in) Ice: Chemical Preservation; Chlor tetracycline

169 SURENDRAN (PK) and IYER (KM). Experimental preservatio of sardines (Sardinella longiceps), using chlor-tetracycline. (Fish Tech. 10; 1973; 110).

Presents the results of studies on the effects of dips in 10 and 50 ppm chlortetracycline solution on the storage life of sardines in ice.

Sardine - Stored - (in) Ice : Canning

170 MADHAVAN (P) and others. Suitability of ice stored mackerel and sardine for canning. (Fish Tech. 7; 1970; 67).

Reports the results of studies on ice storage and subsequent canning of mackerel (Rastrelliger Kanagurta) and sardines (Sardinella longiceps) and the effect of such storage on the quality of the canned product prepared out of them.

Sardine - Stored - (in) ice; Amino acid effect of Aureo mycin

171. JACOB (S) and others. Effect of Aureomycin on the behaviour of certain free amino acids in oil sardine (Sardinella longieeps) held in ice storage. (Fish Tech. 1; 1964; 164).

Deals with the investigations carried out on the course of development of a few free aminoacids under the influence of aureomycin in oil sardine held in ice storage.

Sardine - Stored - (in) Ice; Protein; Nitrogen; Variability

172 DEVADASAN (K) and NAIR (MR). Observations on changes in the major protein nitrogen fraction of prawns and sardines during ice storage. (Fish Tech. 7; 1970;195

Deals with the studies on the changes in major protein nitrogen fractions viz., sarcoplasmic, myo fibrillar and stroma in two species of prawns and in oil sardine held in ice storage.

Salmon : Packaging : Irradiation

173 KUMTA (US) and MADHAVAN (VN). Radurisation process for Indian salmon (Eleu-theronesma tetra dactylum) and black pomfret (Parastromateous niger). (Acta Alimentaria Academiae Scientiarum Hungarieae, 2; 1973; 467).

Abstract ...32.

A radurisation process comprising anaerobic packaging, irradiation at 0.1 Mrad and storage at 0-2°C is described for the extension of shelf-life of Indian salmon and black pomfret.

Carp - Chilled - Stored; Quality ; Variability

174 NAIR (RB) and others. Studies on chilled storage of fresh water fish 1. Changes occurring during iced storage. (J Food Sci Tech. 8; 1971; 53).

States the organoleptic, chemical and bacteriological changes occuring in Mrigal (Cirrhina mrigala), a major carp during iced storage.

Catfish = Liver; Oil ; Vitamin A

175 SINGH (VD) and REGE (MS). On the utilisation of catfish liver oil as a source of vitamin A. (Curr Sci. 33; 1964; 371).

Deals with the investigations carried out on the extraction of a cat-fish liver oil and its vitamin content.

Eel - Smoked : Canning

176 KANDORAN (MK) and others. Canning of smoked eel. (Fish Tech. 8; 1971; 98).

Presents data, applying which an excellent smoked and canned product from eel can be turned ou

Eel = Fillet : Smoking

177 ANON. Smoking of eel fillets. (Fish Tech News Lett. 9; 1968; 2).

Describes a smoking method for the effective preservation and processing of eels as evolved at Central Institute of Fisheries Technology, Ernakulam, India.

178 SOLANKI (KK) and others. Studies on smoking of eel fillets. (Fish Tech.7; 1970; 169).

Describes a method developed by Central Institute of Fisheries Technology for preparation of smoked eel fillets.

...33.

Bombay-Duck : Sun-drying

179 PRABHU (PV). On sun-drying of Bombay duck. (Fish Tech. 9; 1972; 64).

States the results of sundrying of Bombay duck by different methods and opines that the quality of raw material is reflected on the dried products.

Bombay duck : Freezing

180 RADHAKRISHNAN (AG) and others. Preliminary studies on freezing characteristics of Bombay duck (Harpodon neherens). (Fish Tech. 10; 1973; 124).

Reports the work carried out on freezing and frozen storage characteristics of fresh Bombay duck.

Bombay duck - Paste

181 ANON. Fish paste from Bombay duck. (Fish Tech. News Lett. 8; 1967; 3).

Reports that Harpodon neherens can be converted into a good quality fish paste.

Bombay duck - Laminated - Dried ; Discolouration : Control ; Chemical treatment

182 KANDORAN (MK). Studies on the storage behaviour of laminated and commercial Bombay duck. (Fish Tech. 6, 1969; 140).

Deals with the investigations carried out to find out an effective chemical to control the discolouration of dried laminated Bombay duck.

Mackerel

183 GOVINDAN (TK). A highly relished food fish of India. (Seafood Export J. 4; 1972; 27).

Reports the chemical composition, transportation preservation, methods of curing and canning of mackerel.

184 GOVINDAN (TK). The Indian mackerel. (Sci Repter. 3; 1966; 568).

Gives a brief account of the fishery, biology and processing of the Indian mackerel.

...34.

Mackerel : Curing

185 NAIR (TSU) and VALSAN (AP). Time lag between catching and curing of fish and its influence on the finished product. I. Mackerel. (Fish Tech. 8; 1971; 12).

Deals with a study to determine the maximum permissible time lag both under iced and uniced storage conditions between the catching of mackerel (Rastrelliger kamagurta) and its curing so that the quality of the finished product is within tolerable limits.

Mackerel : Salt Curing : Sun drying

186 SEN (DP) and SRIPATHY (NV). Improved method for salt-curing and sun-drying of mackerel. (Indian Seafoods 5; 1967; 12).

Describes the development of a curing mixture and procedure for curing and sundrying of mackerel.

Mackerel : Canning

187 RAI (BS) and others. Some observations on the canning of Indian mackerel. (Seafood Export J. 2; 1970; 34).

Deals with the method of preservation of Indian mackerel, Rastrelliger kanagurta by canning.

Mackerel : Irradiation

188 VENUGOPAL (V) and others. Extension of shelf-life of Indian mackerel (Rastrelliger kanagurta) by irradiation. (J Fish Res Board Canada. 30; 1973; 305).

This report concerns effects of various doses of gamma irradiation on total bacterial count and acceptable shelf-life of Indian mackerel, influence of air and vacuum-packaging on its organoleptic acceptability and oxidative changes, and effects of pre-irradiation storage time on the post-irradiation shelf-life.

Tuna : Processing

189 GOVINDAN (TK). Three highly esteemed table fishes of India. (Seafood Export J. 2; 1970; 11).

Processing aspects of pomfret, seer and tuna have been described.

...35.

Tuna : Canning - (in) Oil

190 MADHAVAN (P) and BALACHANDRAN (KK). Canning of tuna in oil. (Fish Tech. 8; 1971; 23).

Deals with the experimental details of canning of tuna, viz., Katsuwonus pelamis, Neothunnus macropterus and Parathunnus obesus mebachi in oil.

Tuna - Paste

191 VALSAN (AP) and others. A note on proximate composition of tuna fish paste from Minicoy. (Fish Tech. 1; 1964; 106).

Describes an indigenous method of preparing fish paste from Tuna fish, exclusively practised in Minicoy island and presents detailed proximate composition of the product.

Sole - Laminated - Speciality Product

192 VENUGOPAL (NR) and KAIMAL (MNN). Speciality products from laminated soles. (Seafood Export J. 3;1971;21).

Describes the process for preparing speciality products from sole fish Cynoglossus semi-fasciatus.

Pomfret : Freezing : Storage

193 KAMASASTRI (PV) and others. Some aspects of freezing and frozen storage of pomfret. (Fish Tech. 4; 1967; 78).

Reports the results of investigations on the freezing and cold storage of silver pomfrets in order to prevent the dehydration and discolouration.

Pomfret : Chemical preservation ; Chlortetracycline

194 JADHAV (MG) and MAGAR (NG). Preservation of pomfret with chlor-tetracycline. (Fish Tech. 8; 1971; 105).

Presents the studies on the effect of chlortetracycline on the bacterial load, CTC - resistant bacteria and organoleptic qualities of pomfret during storage in ice.

...36.

Pomfrets : Canning

195 VENKATARAMAN (R) and others. Comparative studies on the canning properties of pomfrets and hilsa. (Fish Tech. 7; 1970; 58).

Deals with the studies on the quality of canne silver pomfret, black pomfret and hilsa in relati to the initial quality of the raw materials and also suggests a maximum permissible limit of ice- storage period for raw pomfrets and hilsa intende for canning.

Pomfret : Storage

196 KAMASASTRI (PV) and others. Studies on the storage characteristics of silver pomfret (Pampus argente transported to Bombay. (Fish Tech. 4; 1967; 71).

Reports the results of investigations on the quality of pomfrets transported to Bombay from Gujarat Coast and its subsequent changes during storage at room temperature and low temperature.

Pomfret ; Discolouration effect of Food additive

197 AGARWAL (SR) and KUMTA (US). Factors influencing yellow discolouration of white pomfret (Stromater Cinereus). (J Food Sci Tech. 10; 1973; 68).

Discusses the effects of some food additives ar chemicals on the yellow discolouration of white pomfret (Stromateus Cinereus).

Anchory - Sun dried ; Moisture

198 JOSEPH (KC) and SRINIVASAN (R). Studies on the optimum moisture content of dried white baits (Anchoviela sp.). (Madras J Fish. 4; 1967; 75).

Deals with the studies on the optimum moisture content of sun-dried Anchoviela sp. with a view ensuring the good keeping quality and maximum storage life and suggests the careful handling during processing so as to reduce the extent of breakages.

Silver Belly : Smoke Curing

199 ANON. Preservation of silver-belly by smoke-curing (Fish Tech News Lett. 7; 1966; 1).

Suggests and describes in detail the method o smoke-curing silver bellies which gives a produc of better quality with comparatively long storag life.

...3

Silver belly - Meal

200 SRINIVASAN (R). On the production and nutritive value of fish meal from silver belly (Leiognathus sp.) landings at Rameswaram. (Fish Tech. 3; 1966; 52).

Deals with the possibility of commercial production of fishmeal from Leiognathus sp. and reports that this high quality fishmeal conforms to the standard prescribed by the Ministry of Commerce and industrial development.

Mullet - Decomposed ; Amino acid

201 MENON (G). Free amino acids in spoiling mullet. (Indian J Fish. 9; 1965; 118).

Reports on the changes in free amino-acids in a decomposing mullet, Mugil belank.

Tilapia : Canning

202 ANON. Canning of tilapia. (Fish Tech News Lett. 8; 1968; 3).

Gives the method of canning tilapia tried at the Central Institute of Fisheries Technology, Ernakulam, India.

Prawn : Processing

203 GOVINDAN (TK). The Indian prawns and their commercial processing. (Sci Repter. 2; 1965; 556).

Describes species constituting the Indian prawn fishery, utilisation as dry prawn pulp, frozen prawns, canned prawns, and quality control.

204 GOVINDAN (TK). Some common defects in prawn processing - their sources and remedies. (Fish Tech. 3; 1966; 10).

Enumerates some of the common defects observed in processed prawns and suggests remedial measures to improve further the quality of the processed prawn products.

Prawn : Processing : Hygiene

205 IYER (TSG). An antiseptic ointment for better hygiene of prawn handlers. (Seafood Export J. 5; 1973; 27).

Abstract...38.

Reports the formulation of an effective antiseptic ointment to heal certain lesions and skin eruptions on the palms of workers engaged in prawn processing work.

206 GOPALAKRISHNAN (TS) and CHAUDHURI (DR). Investigation on sanitational aspects (microbiological) of prawn processing factories. (Fish Tech. 2; 1965; 131).

Reports heavy bacterial loads on the surfaces of utensils and other equipments used in prawn processing factories and peeling centres and recommends a cleaning schedule comprising of treatment of these surfaces with a detergent followed by application of an effective disinfectant.

Prawn : Peeling

207 CHAKRAVORTY (PK) and IYER (HK). A mechanised peeling table for prawn processing factories. (Fish Tech. 8; 1971; 101).

Describes the design and successful operation of a prototype mechanised peeling table for prawn processing factories to save time and to improve the peeling operation.

Prawn : Thawing ; Weight loss : Control

208 MATHEW (C). A simple and cheap method for minimising thawing and cooking losses from prawns. (Fish Tech. 7; 1970; 97).

Reports a modified method for minimising thawing and cooking losses from prawns.

Prawn : Blanching

209 CHAUDHURI (DR) and BALACHANDRAN (KK). Preliminary studies on blanching of prawn. (Fish Tech. 2; 1965; 139).

Presents the results of the studies undertaken to find out the causes of irregular drained weight conditions in commercial canned prawn samples.

Prawn : Drying ; Tunnel dryer

210 BALACHANDRAN (KK) and BOSE (AN). Dehydration of prawns in tunnel dryers. (Fish Tech. 2; 1965; 126).

Abstract ...39.

Deals with the dehydration of prawns in a tunnel dryer and mentions the drying time required in a tunnel dryer, normal hot air drying and sun-drying.

Prawns : Drying - Rotary drum drier

211 KAIMAL (PNR) and BALACHANDRAN (KK). Dehydration of Prawns. (Seafood Export J. 1; 1969; 21).

The standard quality of dry prawn product is produced in the rotary drum dryer designed by the Central Institute of Fisheries Technology.

Prawns : Freezing

212 RAO (KK) and PILLAI (VK). A study on the quality of prawns during processing in prawn freezing factories. (Fish Tech. 4; 1967; 98).

Deals with the investigations carried on the occurrence of defective pieces of prawns at three different stages of processing of headless shell on and peeled and deveined varieties each in one freezing factory.

Prawn : Chemical Preservation

213 FATIMA (S) and MAGAR (NG). Preservation of prawns with chemicals. (Fish Tech. 2; 1965; 109).

Reports the results of studies on the preservation of prawns with boric acid, dipotassium hydrogen phosphate, sodim bisulphite, ascorbic acid, citric ascorbic acid mixture, acromise pd, feromycin and pencillin.

Prawn : Canning - Cannery ; Microflora : Survey

214 NAMBIAR (VN) and IYER (KM). Bacteriological investigations of prawn canneries.1. Incidence of acrobic spore formers. (Fish Tech. 8; 1971; 215).

Detailed bacteriological survey of the prawn canneries of Cochin area was carried out to study the nature and type of the micro-organisms present in the factory environs and their role in causing contamination of the canned products.

Prawn ; Quality influenced by Freezing

215 GEORGE (C). Quality loss in prawns due to double freezing. (Fish Tech. 10; 1973; 170).

Abstracts...40.

Indicates that the major quality defects i
prawns due to double freezing are high drip l
and high rate of blackening.

Prawn ; Quality influenced by Storage - (in)

216 BOSE (AN). The effect of prolonged storage in ic
prawn. (Indian Seafoods. 2; 1964; 7).

Concludes that the prawn should not be stor
for prolonged periods in ice and should be pro
as early as possible.

Prawn ; Quality : Evaluation

217 FATIMA (S) and MAGAR (NG). Evaluation of chemica
tests for the quality of prawns. (Fish Tech.
2; 1965; 102).

Reports the results of study made to determi
the value of physical, bacteriological and chem
tests used to find out and compare the indices
quality of prawns stored at 0°C and 18°C.

Prawn ; Blackening : Prevention

218 NANDAKUMARAN (M) and others. Blackening of canned
prawn and its prevention. (Fish Tech. 7;1970;

Gives an account of the types of blackening
associated with canned prawn in brine and their
control.

Prawn ; Flavour : Evaluation ; Sensory method

219 IYER (HK) and others. Experiments in constituting
taste panel for canned and frozen prawn product
(Fish Tech. 6; 1969; 129).

With a view to constituting a taste panel in
the laboratory for detecting the flavour change
in canned and frozen prawn, triangular method h
been found to be suitable.

Prawn ; Spoilage

220 VELANKAR (NK). Biochemical aspects of the spoilag
of prawns. (Fish Tech. 2; 1965; 98).

Reports that melanosis is a characteristic
feature of spoilage in prawns and the period of
absolute freshness does not exceed four hours.

...41-

Prawn - Processed ; Microflora

221 IYER (TSG) and others. Influence of season on the microbial quality of fresh and processed prawn. (Fish Tech. 7; 1970; 93).

Deals with the influence of season on the microbial quality of fresh prawn handled under tropical conditions as obtained in India.

Prawn - Dressed - Cooked - Stored - (in) ice ; yield

222 GOVINDAN (TK) and PERIGREEN (PA). Dressed and cooked yields of prawns in relation to duration of holding in ice. (Indian Food Pack. 26; 1972; 36).

Presents the results of studies on the physical and chemical changes on the dressed and cooked yields of prawns during ice storage.

Prawn - Cooked - Frozen ; Quality - Microbial

223 ANON. Processing of cooked frozen prawns hints on maintenance of bacteriological quality. (Fish Tech News Lett. 8; 1967; 2).

Deals with the precautions that should be adopted by the industry to prevent contamination from bacteria in processing of cooked frozen prawns.

Prawn - dried ; Shelf life

224 LEKSHMY (A) and others. Studies on the quality of dry prawn. (Indian J Fish. 9; 1964; 1).

Presents the data on the variations in the quality of commercial samples of dry prawn and the effect of moisture variations on the quality and shelf life of the products during storage.

Prawn - Frozen : Glazing

225 ANON. Reglazing of frozen prawns - quality of water to be used. (Fish Tech News Lett. 7; 1967; 3).

Suggests use of water chlorinated at 50 ppm level for reglazing purposes.

...42.

Prawn - Frozen ; Microflora : Estimation

231 IYER (HK) and others. Sampling of frozen prawns for bacteriological estimation. (Fish Tech.1;1964;168).

Results of investigations on the method of drawal of sample and the quantity to be taken for a correct determination of bacterial counts in frozen block of prawns.

Prawn - Frozen ; Microflora : Determination

232 RAJGOPAL (MV). Effect of different media on the determination of the number of micro-organisms in frozen prawns (shrimp). (Fish Tech. 2; 1965; 151).

Suggests changes in the medium for total bacterial count to obtain a more true picture and gives reasons for doing so.

Prawn - Frozen - Cooked ; Quality effect of Pre process storage

233 IYER (TSG) and others. Studies on technological problems associated with the processing of cooked frozen prawns. I. Preprocess storage conditions of raw material in relation to quality. (Fish Tech. 6; 1969; 42).

The chemical and organoleptic properties of prawn held in ice for different days prior to cooking and the changes after freezing and subsequent storage have been studied with three different species of prawn.

Prawn - Frozen - Phosphate treated; Quality - Microbial

234 MATHEN (C). Bacterial aspects of quality of phosphate treated frozen prawns. (Fish Tech. 10; 1973; 168).

Concludes that phosphate treatment does not add to bacterial counts of treated and frozen prawns if the solution is prepared in water chlorinated to a level of 10 ppm available chlorine and usual sanitary precautions are taken during treatment, freezing and storage.

Prawn - Frozen - Phosphate treated - Stored; Shelf life

235 MATHEN (C). Phosphate treatment of frozen prawns. II. Frozen storage characteristics of prawn meat treated with polyphosphates. (Fish Tech.7;1970;52).

Abstract...44.

Presents the results on changes in thawed and cooked yields, water extractable nitrogen, non-protein nitrogen, salt solubility, myosin and moisture in the muscle and loss of soluble nitrogenous constituents in thaw drip during frozen storage upto seven months.

Prawn - Frozen - Canned ; Drained Weight : Control

236 RAO (KK). On control of drained weights in some fishery products. (Fish Tech. 9; 1972; 1).

Gross weights of canned and frozen prawns are correlated with the drained weight. The control of drained weight by application of control chart for gross weight has been discussed.

Prawn - Frozen - Stored ; Quality

237 LAKSHMY (A) and others. Storage characteristics of frozen prawns in relation to quality assessment. (Indian J Fish. 9; 1964; 58).

Discusses the implication of the changes in the chemical and bacteriological characteristics of the frozen prawns in quality assessment.

Prawn - Frozen - Stored ; Microflora : Survival

238 LAKSHMY (A). Faecal indicator organisms in frozen prawn products. II. Survival of the organisms during freezing and frozen storage. (Fish Tech. 1;1964;

Study on the rate of survival of Escherichia Coli, Enterococci etc, during freezing and storage of frozen prawn products.

Prawn - Stored - (In) Ice; Quality

239 JACOB (S) and others. Quality studies on round, headless and peeled and deveined prawns held in ice storage. (Indian J Fish. 9; 1965; 97).

A study of the chemical and bacteriological changes in prawns during storage in ice when held in the three forms of "Round", "Headless", or "Peeled" and "Deveined" under commercial handling conditions.

Prawn - Stored - (in) Ice ; Nitrogen - Non protei

240 GOVINDAN (TK). Further studies on ice-stored prawns (Indian Food Pack. 23; 1969; 37).

Indicates that eventhough water soluble nitrogen and non-protein nitrogen contents of prawn muscle show a rapid fall during storage in ice, the total nitrogen contents remain constant when expressed on dry weight basis.

Prawn - Canned : Sterilisation

241 CHOUDHURI (DR) and others. Factors controlling sterility in canned prawn. (Fish Tech. 7; 1970; 73).

Describes the probable sources of contamination of raw, blanched and processed meat at various stages of handling and methods for their rectification.

Prawn - Canned ; Drained Weight : Control

242 VARMA (PRG) and others. Factors controlling drained weight in canned prawn. (Fish Tech. 6; 1969; 134).

Concentration of brine used for blanching and blourching time are the most important factors controlling the drained weight in canned prawn.

Prawn - Canned ; Blackening

243 ANON. Blackening of canned prawn. (Fish Tech News Lett. 8; 1968; 1).

Deals with the problem of blackening in canned prawns and recommends the ways to prevent blackening of the product.

Prawn - Canned ; Blackening influenced by Copper and Iron

244 NANDAKUMARAN (M) and others. Studies on blackening of canned prawns. I. Influence of copper and iron on product blackening. (Fish Tech. 6; 1969; 49).

Deals with the investigations carried out on the effect of heavy metals such as copper and iron on the blackening of canned prawns.

Prawn - Canned ; Blackening : Prevention

245 ANON. How to prevent blackening of canned prawn. (Indian Seafoods. 5; 1967; 16).

Describes the problem and procedure for prevention of blackening of canned prawn with particular emphasis on blackening of the canned meat.

...46.

Prawns - Canned ; Blackening : Prevention; (use of) EDTA

246 MATHEN (C). A method for prevention of blackening and improvement of colour in canned prawns. (Seafood Export J. 4; 1972; 7).

Addition of disodium EDTA to the fill brine was found to be most effective in completely preventing blackening in canned prawns.

Prawn - Canned ; Spoilage - (due to) Microflora

247 NAMBIAR (VN) and IYER (KM). Common microflora involve in spoilage of canned prawns. (Fish Tech.7;1970;116

Deals with an elaborate survey of common types of bacterial flora responsible for spoilage in canned prawns.

Prawn - Canned ; Clostridium perfringens

248 NAMBIAR (VN) and IYER (KM). Bacteriological investigations of prawn canneries. II. Incidence of Clostridium perfringens. (Fish Tech. 10; 1973; 6).

It is observed that the incidence of Clostridium perfringens in canned prawns is little and in frozen prawns it is negligible. C. perfingens is found mainly in the prawn guts and also to a higher extent in the processing centres where prawns are frozen without removing the veins.

Prawns - Stored - (in) Ice : Chemical preservation; Chlortetracycline

249 SURENDRAN (PK) and IYER (KM). Use of antibiotics in the preservation of prawn. (Fish Tech. 8;1971;55).

Presents the results of studies on effect of incorporating chlorotetracycline (CTC) in ice upto 5 ppm level on the keeping quality of prawns.

Prawn - Stored - (in) Ice; Quality

250 GOVINDAN (TK). Studies on ice-stored prawns. (Indian J Fish. 9; 1964; 7).

Discusses the possibility of making use of the leaching out of soluble nitrogenous constituents from the muscle and absorption of water by the muscle from the melted ice for determining the quality of ice-stored prawns.

...47.

Prawn - Stored -(in) Ice - Pulp ; Colour

251 KOMDORAN (MK) and others. Occurrence of a deeper red colour in prawn pulp prepared from iced-prawns. (Fish Tech. 4; 1967; 85).

Deals with the investigations made to ratify the occurrence of an unusually bright deep red colour in prawn pulp prepared from samples stored in ice.

Prawn - Flake

252 ANON. Prawn flake. (Fish Tech. News Lett.7;1966;4).

Describes the method of preparation of prawn flakes containing 15-20% proteins.

Prawn - Cutlet

253 DEVI (ES) and SHANTHAKUMAR (S). Prawn cutlets - preparation and preservation. (Indian Seafoods. 5; 1967; 9).

Deals with the method of preparation of prawn cutlets and its preservation by freezing and storage in frozen condition.

Prawn = Muscle - Stored -(in) Ice ; Nitrogen relation Quality - Sensory

254 GOVINDAN (TK). Assessment of quality of ice-stored prawns. (Sci & Cult. 30; 1964; 247).

Reports the correlations of the water soluble nitrogen and free amino acid nitrogen retained in the muscle of prawns during storage in ice with its quality as determined organoleptically.

Crab : Utilization

255 LAKSHMINARAYANA (KV) and others. Utility of king or horseshoe crabs. (Seafood Export J. 4; 1972; 29).

The economic importance of the Indian species of king or horseshoe crabs has been described.

Crab ; Chemical composition

256 GEORGE (C) and JAMES (MA). Technological aspects of preservation and processing of edible shell fishes. II. Influence of season on the chemical composition of crab (Scylla serrata). (Fish Tech. 8; 1971; 83).

...48.

Brings out the influence of season on the chemical composition of crab, covering a period o two years.

Crab ; Protein - Concentrated

257 ANON. Crab concentrate. (Fish Tech News Lett. 7; 1966; 5).

Gives the method of preparation of crab concentrate as tried at the Central Institute of Fisheries Technology, Ernakulam, India.

Crab - Processed - Stored -(in) Ice; Spoilage

258 CHINNAMMA (PL) and others. Technological aspects of processing of edible mussels, clams and crabs. I. Spoilage during ice storage. (Fish Tech.7;1970;13

Deals with the rate and pattern of spoilage of some of the economically important edible species of shell fishes, Viz., Mytilus edulis, Villorita Cormucopia, Neptunus pelagicus and Scylla serrata.

Crab - Frozen ; Shelf life influenced by Glazing

259 GEORGE (C). Technological aspects of preservation an processing of edible shell fishes. IV. Comparativ efficiency of different glazes in the preservation of frozen crab meat. (Fish Tech. 10; 1973; 166).

Indicates that of all the glazes studied ascorbic citric acid mixture in the best for exten ding shelf-life, preventing discolouration and minimising drip loss in the preservation of frozen crab meat.

Crab - Frozen - Stored ; Shelf life

260 GEORGE (C). Technological aspects of preservation an processing of edible shell fishes. III. Factors influencing the keeping quality of crab (Scylla serrata) during freezing and frozen storage. (Fish Tech. 10; 1973; 15).

Presents the possible factors leading to the loss of flavour and general quality of crab during freezing and frozen storage.

...49.

Clam : Canning : Industry

261 SEBASTIAN (MJ). The clams and mussels of Kerala - Prospects of a better and fuller utilisation by means of canning. (Seafood Export J. 2;1970;25).

The attention of entrepreneurs in seafood industry is invited to the clams and mussels of Kerala for a better and fuller utilisation by means of canning.

Shrimp

262 SAMUEL (CT). An analysis of the shrimp resources of India and its relation to the seafood products. (Indian Seafoods. 7; 1969; 15).

Indicates the inadequacy of the knowledge of aquatic animal resources on which depends the seafood industry.

Shrimp : Industry

263 CHACKO (NJ). The future of shrimp processing industry in India. (Fish Tech. 3; 1966; 1).

Reports the progress of shrimp processing industry in India and suggests the proper implementation of schemes and plans for the development of the future prospects of the industry.

264 CHESIYAN (AC). The saga of the Indian shrimp industry. (Seafood Trade J. 2; 1967; 11).

Reviews the history of Indian shrimp industry, the problems facing it and their solutions.

Shrimp : Industry ; Export

265 PAUL (J). Export potentialities of Indian seafoods with special reference to shrimp. (Seafood Export J. 3; 1971; 15).

Discusses on the export performance of important industry with special reference to shrimp and suggests remedial measures to face the present problem.

Shrimp : Processing ; Hygiene

266 IYER (TSG) and others. Studies on technological problems associated with the processing of cooked frozen prawns. II. Hygienic conditions in relation to bacteriological characteristics. (Fish Tech. 6; 1969; 59).

Discusses the importance of sanitary practices in the processing of precooked frozen shrimps and suggests a scheme of processing for controlling the microbial quality.

Shrimp : Cooking ; Drip loss ; Prevention

267 MATHEN (C) and others. Prevention of cook drip loss from shrimp meat. (Seafood Export J. 4; 1972; 9).

Reports a modified method for preventing cook drip losses from shrimp meat.

Shrimp : Canning

268 RAO (KK). Control charts : an application in shrimp canning. (Fish Tech. 8; 1971; 120).

Describes the procedure of setting up a variable control chart with observations taken on filling operation of cans in a shrimp canning factory.

Shrimp ; Amino acid

269 RANGASWAMY (JR) and others. Free amino acid pattern of Indian shrimp. (J agric Food Chem. 18;1970;298).

Describes the quantitative estimation of the free amino acids by ion-exchange chromatography in Indian shrimp (Metapenaeus Dobsonii).

Shrimp - Extract

270 ANON. Shrimp Extract. (Fish Tech News Lett.6;1965;4).

Gives the method of preparation of shrimp extract by using Acctes spp.

Shrimp - Cooked - Frozen ; Quality

271 MUDAMBI and RAJAGOPAL (V). Effect of method of processing on the quality of cooked frozen shrimp. (Indian Food Pack. 27; 1973; 24).

Reports the loss in weight and contamination from micro-organisms in the continuous cooker and batch cookers for all varieties of shrimp tested.

...51.

Shrimp - Frozen : Industry ; Marketting

272 RAO (KK) and NAIR (RG). Prices of Indian frozen shrimp in U.S. market - a note on seasonal variation. (Fish Tech. 9; 1972; 182).

The seasonal indices for the prices of Indian frozen shrimp in U.S. market have been presented.

Shrimp - Frozen ; Quality Improvement

273 SAXENA (BS). Price behaviour of Indian frozen shrimps in U.S. market. (Seafood Export J. 2; 1970; 17).

Concludes that enforcement of bacteriological standards, improvement in the quality of packing-cartons and introduction of more scientific and automatic techniques of shrimp processing are needed for a better demand of Indian frozen shrimps in U.S. market.

Shrimp - Frozen ; Microflora : Analysis

274 GEORGE (JP). Bacteriological examination of fresh frozen shrimp. (Seafood Export J. 2; 1970; 11).

Describes the merits and demerits of the decision of imposition of bacteriological examination of fresh frozen shrimp with a view to determine whether the move contemplated by the government will help to achieve its objective of improving and standardizing the quality of the finished product.

275 GEORGE (JP). Bacteriological examination of fresh frozen shrimp. (Indian Seafoods. 8; 1970; 21).

Describes the usefulness of the bacteriological examination of fresh frozen shrimp to improve and standardize the quality of the finished product.

Shrimp - Frozen ; Fecal Streptococc

276 IYER (TSG) and others. Faccal streptococci in fresh frozen shrimp. (Fish Tech. 10; 1973; 66).

Indicates that fixing the maximum permissible limit of Faccal streptococci as 1000/g in fresh frozen shrimp will be a workable proposition.

...52.

Shrimp - Freeze dried ; Texture

277 MOORJANI (MN). Texture and reconstitution property of freeze-dried shrimp. (Food Tech. 22; 1968; 886).

Shrimp freeze-dried in fresh condition had gre eye-appeal because their original size and shape v retained and had better flavour but their texture deteriorated on storage.

Shrimp - Canned ; Nucleotide

278 SURYANARAYANARAO (SV) and others. Nucleotides and rel ted compounds in canned shrimp. (J Fish Res. Board Canada. 26; 1969; 704).

Preliminary findings indicate that, although inosine-5-monophosphate IMP) has been reported to fairly heat-stable, only 40% of IMP, 33.5% of adenosine-5-monophosphate (AMP), and 25% of hypoxa thine remain in canned shrimp.

Molluscs; Nutritive Value

279 SURYANARAYANAN (H) and ALEXANDER (KM). Biochemical investigation on edible molluscs of Kerala. I. A study on the nutritional value of some bivalves. (Fish Tech. 9; 1972; 42).

Data on the biochemical constituents and food values of five commercially important edible bival ves of Kerala, Lamellidens Corrianus, Corbicula striatella, Mytilus edulis, Vellorita Cohinensis a Ostrea Cucullata have been presented.

280 SURYANARAYANAN (H) and others. Biochemical investigat on the edible molluscs of Kerala. II. A study on t nutritional value of some gastropods and cephalopo (Fish Tech. 10; 1973; 100).

Presents the data on the biochemical compositi and food value of the edible portions of two gastr pods, Pila virens and Achatina fulica, and two Cephalopods, Sepiella inermis and Loigo indica.

Oyster : Shucking

281 SINGH (G). Laser modernizes oyster shucking. (Food Te 26; 1972; 60).

Abstract..

Complete or partial mechanization of oyster shucking appears to be the solution to the problem of hand-shucking to extract raw oyster meat from shells.

Oyster ; Nutritive value

282 CHARI (ST). Chemical composition and food value of chank and pearl oyster. (Madras J Fish. 2;1966;84).

Gives the economic utility of chank and oyster as a source of food and the chemical composition of their shells too.

Oyster ; Fatty acid

283 VENUGOPALAN (VK). Fatty acid composition of the fat in the two sexes of the Oyster, Crassostrea madrasensis. (Curr Sci. 35; 1966; 99).

Records some of the chief differences in the analytical constants and the major fatty acids of the depot fat in the two sexes of the oyster.

Turtle ; Chemical Composition

284 RAO (RA) and DUTT (S). Chemical composition of the flesh of the turtle Chelone mydas (Bonlenger). (Curr Sci. 34; 1965; 695).

Gives an account of the chemical composition and nutritive value of the flesh of turtles from Indian waters.

Frog = Leg : Salt treatment

285 IYER (TSG) and CHOUDHURI (DR). Advantage of salt treatment in frog-legs processing. (Sci & Cult. 34; 1968; 299).

Experiments using salts of different concentrations for a predrip of the live frogs have shown that at levels of 10% or above, a 10 min dip paralyses the frogs so that cutting becomes easy and less painful. This treatment has also been found to remove the contaminating organisms from the skin surface of the finished products.

286 ANON. Utilisation of frogwastes. (Fish Tech News Lett. 9; 1968; 5).

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